

Massachusetts Department of Public Health

INFECTION PREVENTION AND CONTROL INFORMATION SHEET

TRANSMISSION OF RESPIRATORY PATHOGENS

Knowing the ways communicable (infectious) diseases are transmitted is important for implementing proper infection control and prevention. There are a number of routes of transmission, including contact, droplet (respiratory secretions), airborne, and common vehicle*. Common vehicle transmission is usually not a significant mode of transmission for respiratory pathogens in the healthcare setting. Most respiratory illnesses are spread primarily through contact, droplets, or through the air.

Contact is the most frequent mode of transmission of healthcare associated infections. There are two major subgroups: direct-contact transmission and indirect-contact transmission.

Direct-contact transmission involves a direct person-to-person contact, which results in the physical transfer of microorganisms from an infected or colonized person to a susceptible person, such as might occur in the course of patient care activities. Direct-contact transmission also can occur between two patients.

Indirect-contact transmission involves contact of a susceptible individual with contaminated objects such as instruments, needles, or dressings; contaminated hands (that are not washed); or gloves that are not changed between patients.

Droplets (respiratory secretions) are generated by a person primarily during coughing, sneezing and talking, and during the performance of certain procedures, such as suctioning and bronchoscopy. Transmission occurs when droplets containing microorganisms generated from the infected person are propelled a short distance through the air (less than three feet) and are deposited on the recipient's conjunctivae, nasal mucosa or mouth.

"Droplet" transmission is not true airborne transmission, because droplets do not remain suspended in the air. Special air handling and ventilation are not required for control.

Airborne transmission occurs by dissemination of either airborne droplet nuclei (small-particle residue [5µm or smaller in size] of evaporated droplets containing microorganisms that remain suspended in the air for long periods of time), or dust particles containing an infectious agent. Microorganisms carried in this manner may remain suspended in the air for a prolonged period, can be dispersed widely by air currents, and may become inhaled by a susceptible host within the same room or over a longer distance from the source patient, depending on environmental factors. Special air handling and ventilation are required to prevent airborne transmission. Microorganisms transmitted by airborne transmission include *Mycobacterium tuberculosis*, measles virus and varicella virus.

* **Common vehicle transmission** applies to microorganisms transmitted by contaminated items such as food, water, medications, devices, and equipment.

